SPECIFICATIONS CLINIC / BY HAROLD J. ROSEN

Systems Building and Performance Criteria

A shift from our present materials-oriented approach to design to systems design will change the nature of specifications writing. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York City.

The advent of systems buildings and design and the increasing use of the computer may very well change the manner in which specifications are written today. Generally speaking, architectural specifications are divided into a series of technical sections, each of which describes materials and their installation related to a unit of work.

For example, the masonry work shown on drawings might include face brick, concrete block, gypsum block, mortar, metal ties, and anchors. Specification writers can take several routes to incorporate the information required for these items concerning the quality of materials and workmanship into their technical sections. They can write separate fragmented sections, each dealing with only one area of the scope of work, or they can amalgamate all of the information into one section as follows:

EXAMPLE 1

4A: MASONRY, GENERAL
4B: MASONRY MORTARS
4C: FACE BRICK
4D: CONCRETE BLOCK
4E: GYPSUM BLOCK
4F: STRUCTURAL FACING TILE
4G: MASONRY ANCHORS AND TIES

EXAMPLE 2

4A: UNIT MASONRY

In Example 1, MASONRY, GENERAL includes primarily the installation of all masonry materials specified under the separate sections listed below it. In addition, in Example 1, each of the materials are specified under separate sections. The reason for this fragmentation is to enable the specifier to write Master or Guide Specifications for each individual item. For the specific project, some sections on materials are omitted where they do not appear on the drawings, and each of the remaining sections are edited to conform to the project requirements and then issued as a series of technical sections.

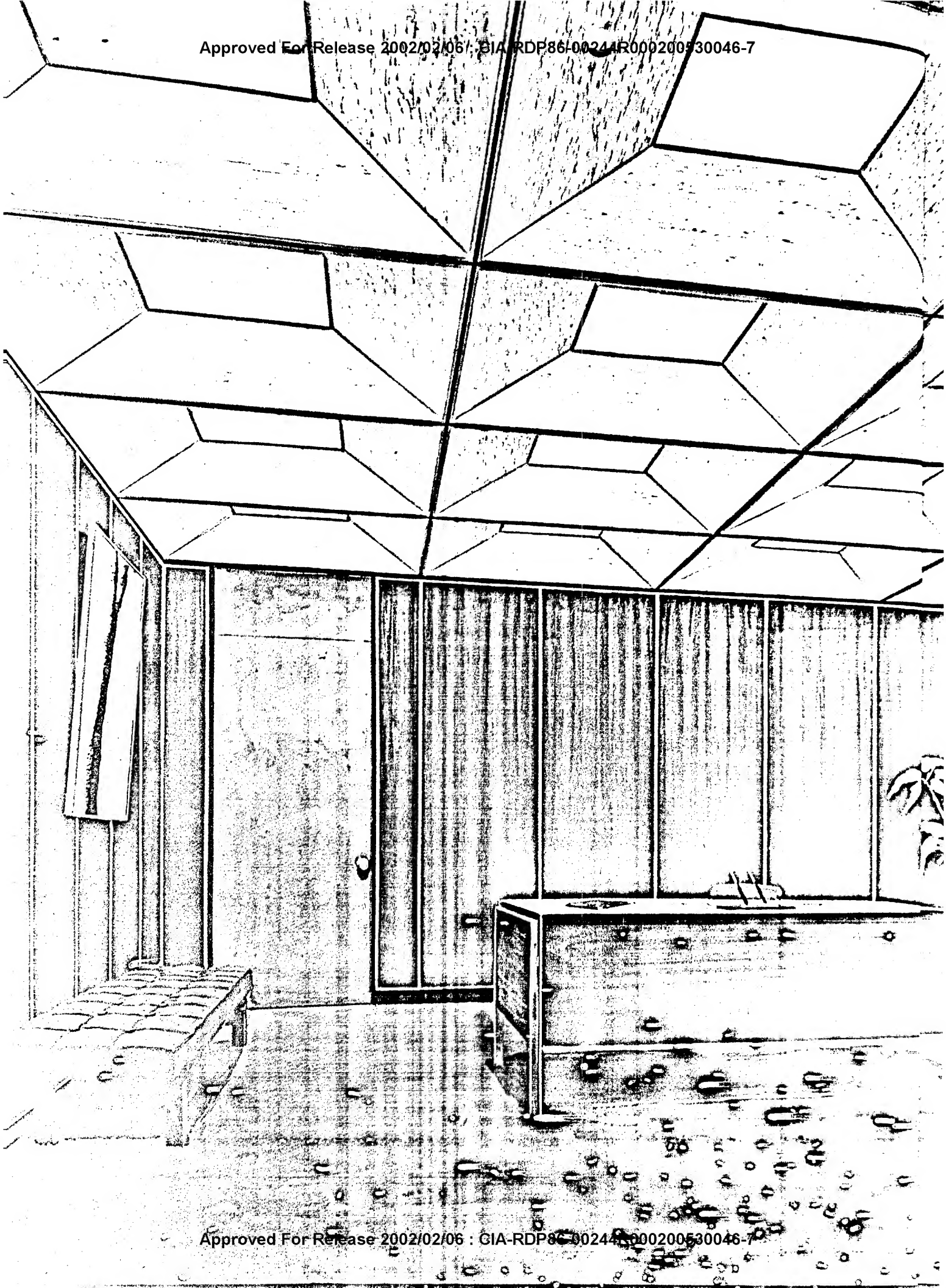
In Example 2, all of the masonry materials and their installation are written in a single section. In typical state highway department specifications for roadwork, one finds that, traditionally, all materials are described in one section of the specifications and workmanship and installation are specified in another section.

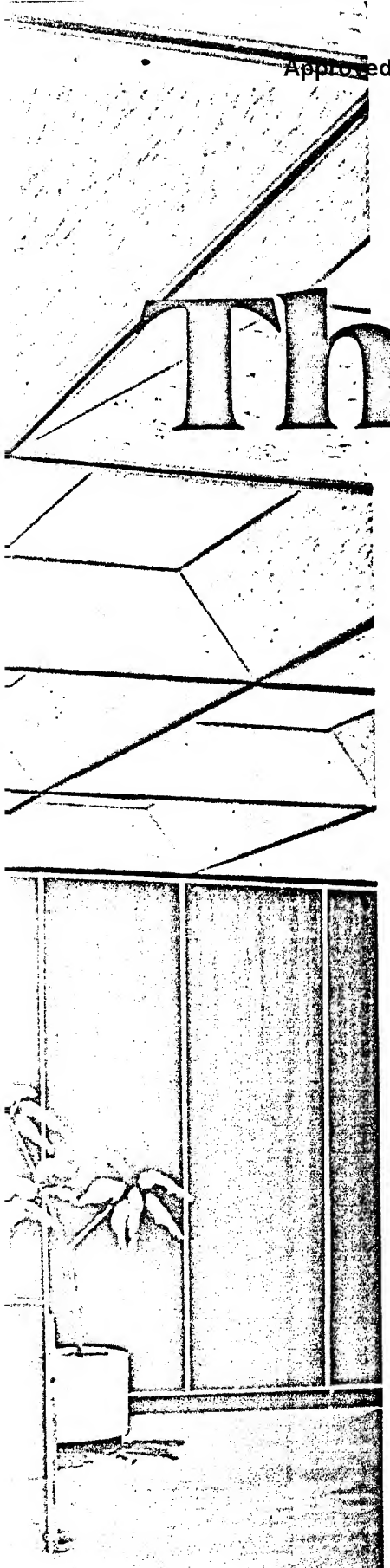
All of these methods of organizing the material that comprise specifications and the manner in which they are written will undergo dramatic change as we enter the era of building systems design and the employment of the computer.

Systems building and design will be concerned more with subassemblies and composites rather than with individual materials and products. Our current test methods and procedures for the evaluation of performance is based primarily upon individual components. Very few standards exist on the performance of subassemblies and composites. In addition, the design of a building system will cut across the design disciplines as we know them today. Architects and engineers will have to merge in order to design composite units. Likewise manufacturing plants in the production of these subassemblies will resemble automobile or aerospace plants rather than building materials manufacturers. The installation of these subassemblies, too, will defy current traditional labor practices. The entire design and construction process involved in systems building will affect the current concept of specifications writing.

It is still too early to predict how specifications will be written to conform to this new concept. However, if we can understand the new dimensions of systems buildings we can begin to formulate the requirements of tomorrow's specifications. First, new test methods will have to be devised to cope with the performance requirements of subassemblies and assemblies. This will require the establishment of criteria for structural adequacy, fire resistivity, sound transmission, thermal conductivity, sound attenuation, and mechanical and electrical properties to provide for physical comfort by controlling heating, cooling, and illumination.

One approach to systems building may require that the design team establish the parameters for a project, setting forth aesthetic controls, with the specifier establishing the performance characteristics required to meet these conditions. Obviously, the specifier will no longer be dealing in items of specific materials or products, but rather in the broader range of subassemblies and components. No longer will he be describing in cook book fashion how to lay brick upon brick. Instead, his specification will be concerned primarily with performance and results rather than description and methods. Individual or combined sections on materials and their installation will give way to systems performance specifications where technical sections will establish the parameters of assemblies of floors, ceilings, and walls on the basis of life safety, acoustics, structure, and so on. But before he can write these requirements, standards making bodies such as ASTM will have to get involved in the writing of test procedures for the evaluation of these criteria.





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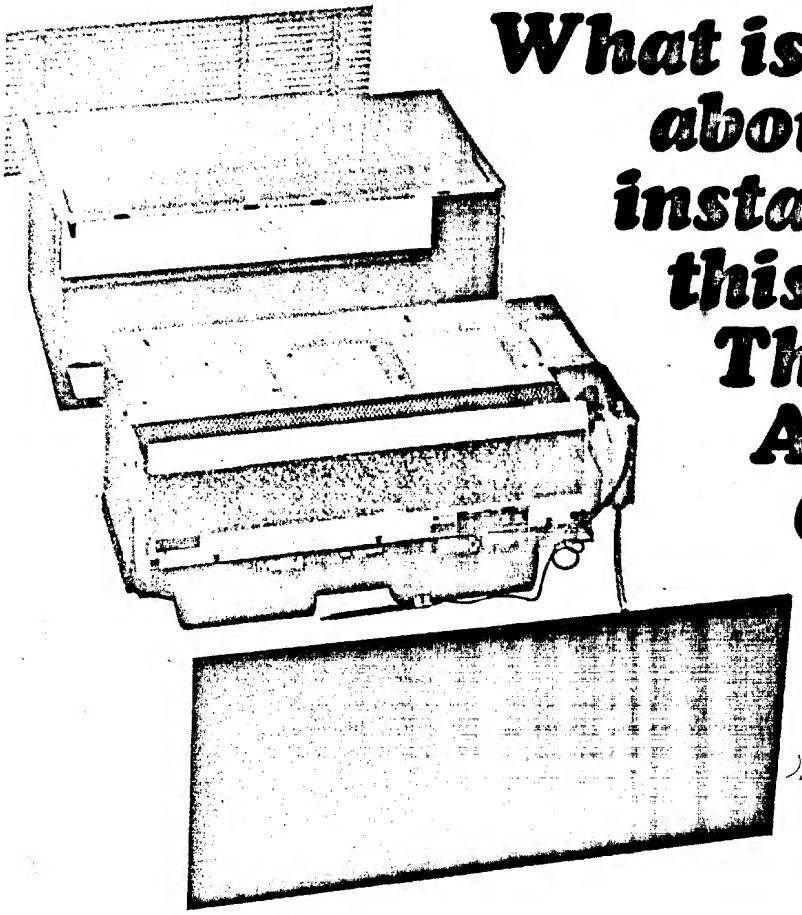

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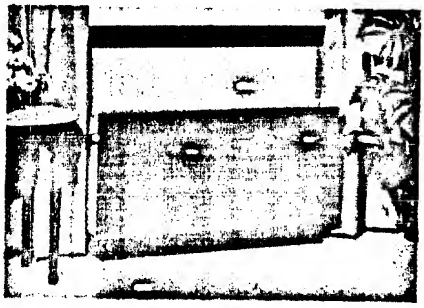

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